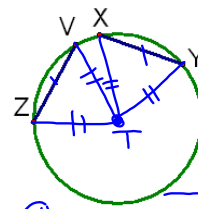
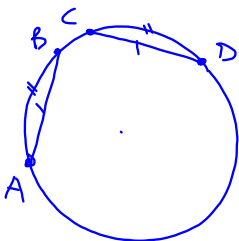


### 10-3 Apply Properties of Chords

Given:  $\overline{XY} \cong \overline{VZ}$ Prove:  $\widehat{XY} \cong \widehat{VZ}$ 

- |   |                                     |
|---|-------------------------------------|
| ①   | ① Given                             |
| ② Draw $\overline{TZ}, \overline{TV}, \overline{TX}$<br>+ $\overline{TY}$     | ② Through any 2 pts there is a line |
| ③ $\overline{TZ} \cong \overline{TV} \cong \overline{TX} \cong \overline{TY}$ | ③ All radii in a circle are $\cong$ |
| ④ $\triangle VTZ \cong \triangle XTY$   | ④ SSS                               |
| ⑤ $\angle VTZ \cong \angle XTY$   | ⑤ CPCTC                             |
| ⑥ $\widehat{VZ} \cong \widehat{XY}$   | ⑥ def of measure of minor arc       |
| ⑦ $\widehat{XY} \cong \widehat{VZ}$   | ⑦ Symmetric                         |

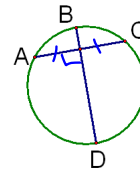
Theorem 10.3--In a circle or in congruent circles, 2 minor arcs are congruent iff their corresponding chords are congruent

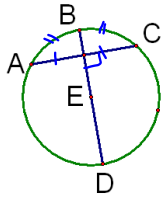
G:  $\overline{AB} \cong \overline{CD}$ C:  $\widehat{AB} \cong \widehat{CD}$ 

or vice versa

G:  $\widehat{AB} \cong \widehat{CD}$ C:  $\overline{AB} \cong \overline{CD}$ 

Theorem 10-4 If one chord is a perpendicular bisector of another chord, then the first chord is a diameter.

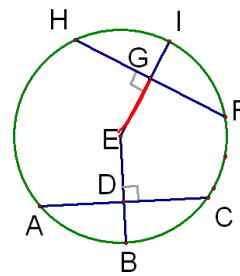
G:  $\overline{BD}$  is  $\perp$  bis. of  $\overline{AC}$ Concl:  $\overline{BD}$  is the diameter



Theorem 10-5 In a circle, if the diameter is perpendicular to a chord, it bisects the chord and its arc.

G:  $\overline{BD} \perp \overline{AC}$   
 Concl:  $\overline{AE} \cong \overline{CE}$   $\widehat{AB} \cong \widehat{BC}$

Theorem 10.6--In a circle, or in congruent circles, 2 chords are congruent iff they are equidistant from the center

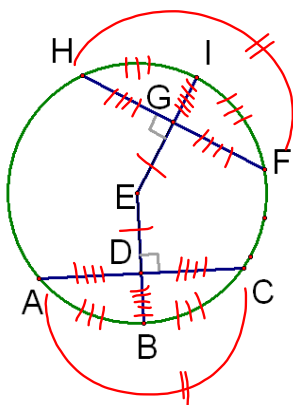


G:  $\overline{HF} \cong \overline{AC}$

Concl:  $\overline{EG} \cong \overline{ED}$

G:  $\overline{EG} \cong \overline{ED}$

C:  $\overline{HF} \cong \overline{AC}$

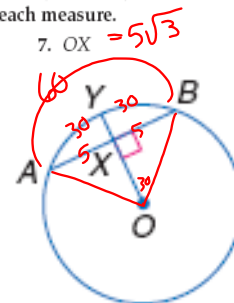


Given:  $\overline{AC} \cong \overline{DF}$

What can you conclude?

Circle O has a radius of 10,  $AB = 10$ , and  $m\widehat{AB} = 60$ . Find each measure.

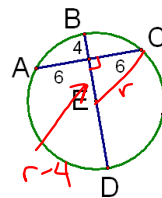
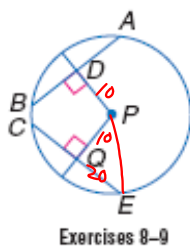
5.  $m\widehat{AY}$  30    6.  $AX$  5    7.  $OX$   $= 5\sqrt{3}$



Exercises 5-7

In  $\odot P$ ,  $PD = 10$ ,  $PQ = 10$ , and  $QE = 20$ .  
Find each measure.

8.  $AB = 40$       9.  $PE$



What is the radius?

$$6^2 + (r-4)^2 = r^2$$

$$6.5 = r$$

HW p667-669  
3-11, 18-20, 24, 30

↑  
SOHCAHTOA